



MODEL 420
PROJECT 1885
FUNCTION GENERATOR
SCHEMATIC DIAGRAM
S. RICHMOND 8-7-79
SIMPSON ELECTRIC CO.

- NOTES:
 1. UNLESS OTHERWISE SPECIFIED; RESISTORS IN OHMS, 1/4W, 5%.
 2. LINE VERSION ONLY, MODEL 420A
 3. BATTERY VERSION ONLY, MODEL 420B
 4. ALL SWITCHES SHOWN IN OUT POSITION.
 5. FOR 120V CONNECT POWER LINE TO TERMINALS 1 & 2, F1=1/8A.
 FOR 220V CONNECT POWER LINE TO TERMINALS 1 & 3, F1=1/8A.
 FOR 240V CONNECT POWER LINE TO TERMINALS 1 & 4, F1=1/8A.

FIGURE 7-1. SCHEMATIC DIAGRAM

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Replacement Parts

Symbol	Description	Part No.
	Battery, Eveready CH 1.8 or equivalent (ea. battery is rated at 1.25 V, 1.8 amp-hrs.)	
	Fuse 1/4A, 250V 3AG	1-113835
	Fuse Clip	5-117739
C1	Capacitor, 3μF ±2%, 100V	6-111369
C2	Capacitor, .33μF ±2%, 100V	6-111948
C3	Capacitor, .033μF ±2%, 100V	6-111947
C4	Capacitor, 3000pF ±2.5%, 33V	6-111946
C5	Capacitor, Variable, 5.5-60pF	5-116235
C6	Capacitor, 250pF ±5%, 100V	6-111945
C7, C8	Capacitor, .01μF ±20%, 50V	5-117969
C9	Capacitor, 1000pF ±20%, 1kV	1-119959
C10	Capacitor, 180pF ±10%, 50V	6-111944
C11	Capacitor, 560pF ±20%, 500V	5-112695
C12	Capacitor, .01μF ±20%, 50V	5-117969
C13	Capacitor, 47μF +50%	
C14	Capacitor, 1μF +80%	5-118498
	Capacitor, 1μF +80%	
	Capacitor, 1μF +80%	5-119660
C15, C16, C17, C18	Capacitor, 220μF +50%	
	Capacitor, 22μF +50%	6-111949
C19, C20	Capacitor, 22μF +50%	
	Capacitor, 22μF +50%	6-110774
C21	Capacitor, .01μF ±20%, 50V	5-117969
C22	Capacitor, 180pF ±10%, 50V	6-111944
C23	Capacitor, .01μF ±20%, 50V	5-117969
C24	Capacitor, 47μF +50%	
C25	Capacitor, 2200μF +50%	5-118498
	Capacitor, 2200μF +50%	
	Capacitor, 2200μF +50%	5-118084

Replacement Parts

Symbol	Description	Part No.
C26	Capacitor, 10μF 16V	5-118426
C27	Capacitor, 100μF 10V	5-117050
C28	Capacitor, .022μF ±20%, 100V	5-116188
C29	Capacitor, 1000pF, 1kV	5-111119
C30, C31	Capacitor, 100uF 20V	6-110306
C32	Capacitor, 47μF +50%	
	Capacitor, 47μF +50%	5-118498
	Capacitor, 47μF +50%	
D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14 D16, D17 D18, D19, D20 D21, D22	Diode, IN4148 Diode, IN4002 Diode, IN4148 Diode, IN4001 Diode, 1N914	5-115214 5-113201 5-115214 5-113200 5-112004 6-111413
Z01	Zener Diode, 1N5232B	5-112634
Z02	Zener Diode, 1N753A	5-115945
	Rectifier, Full Wave Bridge, W005	5-116206
	Light Emitting Diode, MV5025	5-119447
IC1	Integrated Circuit, LM3046N	
IC2	Integrated Circuit, LM1458N ("A" Version) TL022 ["D" Version]	5-117432 5-119511
IC3	Integrated Circuit, LM319N	6-111950
IC4	Integrated Circuit, DM7400N	5-118317
IC5	Integrated Circuit, 78L12A	6-111110
IC6	Integrated Circuit, 78L05A	6-111951
IC7	Integrated Circuit, LM1458N ("A" Version) TL022 ["D" Version]	5-117432 5-119511
IC8	Integrated Circuit, LM3046N	5-119447
IC9	Integrated Circuit, LM741CN	5-115928

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Replacement Parts

Symbol	Description	Part No.
Q1	Transistor, 2N4126	5-116458
Q2	Transistor, 2N4338	5-119216
Q3	Transistor, 2N5828	5-117065
Q4	Transistor, 2N4126	5-116458
Q5	Transistor, 2N5828	5-117065
Q6	Transistor, 2N4126	5-116458
Q7, Q8	Transistor, 2N5828	5-117065
Q9	Transistor, 2N4121	5-115939
Q10	Transistor, 2N5828	5-117065
Q11	Transistor, 2N4121	5-115939
Q13	Transistor, D40DI	5-117342
Q14, Q15	Transistor, GET 2222	5-115934
Q16, Q17	Transistor, 2N5828	5-117065
R1	Resistor, 2K $\pm 5\%$, $\frac{1}{2}$ W	5-119349
R2	Resistor, 3.9K $\pm 5\%$, $\frac{1}{4}$ W	5-114974
R3	Resistor, 100 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-118152
R4	Resistor, 3.9K $\pm 5\%$, $\frac{1}{4}$ W	5-114974
R5	Resistor, 2K $\pm 5\%$, $\frac{1}{4}$ W	6-110093
R6, R7	Resistor, 10K $\pm 5\%$, $\frac{1}{4}$ W	5-118161
R8	Resistor, 6.8K $\pm 5\%$, $\frac{1}{4}$ W	5-118256
R9	Resistor, 2K $\pm 1\%$, $\frac{1}{8}$ W	5-115500
R10	Resistor, 4.87K $\pm 1\%$, $\frac{1}{8}$ W	6-110551
R11	Resistor, 510K $\pm 5\%$, $\frac{1}{4}$ W	6-110844
R12	Resistor, 2K $\pm 1\%$, $\frac{1}{8}$ W	5-115500
R13	Resistor, 2K $\pm 5\%$, $\frac{1}{4}$ W	6-110093
R14	Resistor, 200 Ω $\pm 1\%$, $\frac{1}{8}$ W	5-119741
R15	Resistor, 1.96K $\pm 1\%$, $\frac{1}{8}$ W	6-111965
R16	Resistor, 19.6K $\pm 1\%$, $\frac{1}{8}$ W	5-116504
R17, R18	Resistor, 10 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119670
R19	Resistor, 2K $\pm 5\%$, $\frac{1}{4}$ W	6-110093
R20	Resistor, 56K $\pm 5\%$, $\frac{1}{4}$ W	5-118167

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Replacement Parts

Symbol	Description	Part No.
R21	Resistor, 20K $\pm 1\%$, $\frac{1}{8}$ W	5-116621
R22	Resistor, 1K $\pm 1\%$, $\frac{1}{8}$ W	1-117058
R23	Resistor, 10K $\pm 5\%$, $\frac{1}{4}$ W	5-118161
R24, R25	Resistor, 1K $\pm 5\%$, $\frac{1}{4}$ W	5-118155
R26	Resistor, 200 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119740
R27	Resistor, 1K $\pm 1\%$, $\frac{1}{8}$ W	1-117058
R28	Resistor, 20K $\pm 1\%$, $\frac{1}{8}$ W	5-116621
R29	Resistor, 1K $\pm 5\%$, $\frac{1}{4}$ W	5-118155
R30	Resistor, 510 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-114965
R31	Resistor, 10K $\pm 5\%$, $\frac{1}{4}$ W	5-118161
R32	Resistor, 300 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119630
R33	Resistor, 1K $\pm 5\%$, $\frac{1}{4}$ W	5-118155
R34	Resistor, 20K $\pm 5\%$, $\frac{1}{4}$ W	5-119645
R35	Resistor, 1K $\pm 5\%$, $\frac{1}{4}$ W	5-118155
R36	Resistor, 3.9K $\pm 5\%$, $\frac{1}{4}$ W	5-114974
R37, R38, R39	Resistor, 100 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-118152
R40, R41	Resistor, 20K $\pm 1\%$, $\frac{1}{8}$ W	5-116621
R42	Resistor, 2K $\pm 1\%$, $\frac{1}{8}$ W	5-115500
R43	Resistor, 332 Ω $\pm 1\%$, $\frac{1}{8}$ W	5-118047
R44	Resistor, 750 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119760
R45, R46	Resistor, 1K $\pm 5\%$, $\frac{1}{4}$ W	5-118155
R47	Resistor, 3.9K $\pm 5\%$, $\frac{1}{4}$ W	5-114974
R48	Resistor, 300 Ohm $\pm 5\%$, $\frac{1}{4}$ W	5-119620
R49	Resistor, 100K $\pm 5\%$, $\frac{1}{4}$ W	5-118168
R50	Resistor, 750 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119760
R51	Resistor, 20K $\pm 5\%$, $\frac{1}{4}$ W	5-119645
R52	Resistor, 6.8K $\pm 5\%$, $\frac{1}{4}$ W	5-118256
R53	Resistor, 10 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119670
R54	Resistor, 200 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119740
R55	Resistor, 10 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119670
R56	Resistor, 750 Ω $\pm 5\%$, $\frac{1}{4}$ W	5-119760

Replacement Parts

Symbol	Description	Part No.
VR11	Potentiometer, 5K 1/2W	6-111943
VR12, SW2	Potentiometer, 50K, 1/4W w/Switch	5-119779
VR13	Potentiometer, 100K .2W	5-118175
VR14	Potentiometer, 1K .1W	5-116185
VR15	Potentiometer, 5K .2W	5-119773
SW1	Switch, Push Button, 12 Positions	6-111952
TI	Power Transformer	
	("A" Version)	6-111953
	["D" Version]	5-119391
T2	DC-DC Converter Transformer	5-118377
	Button, Red	6-110113
	Button, Gray	6-110115
	Button, Black	6-110114
	Fuse Clip	5-117739
	Heat Sink	5-118657
	Battery Holder	6-111960
	Bracket Assembly, Power Connector	10-863216
	Panel Assembly	10-864544
	BNC Connector	5-111622
	Connector, Jack	5-117326
	Binding Post	6-111955
	Case Assembly, Top (420A)	10-864543
	Case, Bottom	5-118373
	Handle	5-118375
	Plate, Insert, Handle	5-118398
	Bumper, Rubber Foot	1-117829
	Cover, Transformer	3-261059
	Knob, 1/8" Dia. Bushing	5-118140
	Knob, 1/4" Dia. Bushing	6-111941
	Knob, Frequency Indicator	6-111977

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Replacement Parts

Symbol	Description	Part No.
R57	Resistor, 100Ω ±5%, 1/4W	5-118152
R58, R59	Resistor, 200Ω ±5%, 1/4W	5-119740
R60	Resistor, 5.6K ±5%, 1/4W	5-118257
R61	Resistor, 750Ω ±5%, 1/4W	5-119760
R62, R63	Resistor, 6.8 ±5%, 1/4W	5-118256
R64	Resistor, 100K ±5%, 1/4W	5-118168
R65	Resistor, 22Ω ±5%, 1/4W	5-115509
R66, R67	Resistor, 300Ω ±5%, 1/4W	5-119630
R68	Resistor, 22Ω ±5%, 1/4W	5-115509
R69	Resistor, 300Ω ±5%, 1/4W	5-119630
R70	Resistor, 3.9K ±5%, 1/4W	5-114974
R71	Resistor, 300Ω ±5%, 1/4W	5-119630
R72	Resistor, 3.9K ±5%, 1/4W	5-114974
R73	Resistor, 680Ω ±5%, 1/4W	5-119634
R74	Resistor, 390Ω ±5%, 1/4W	5-118420
R75	Resistor, 18K ±5%, 1/4W	5-115512
R76	Resistor, 62Ω ±5%, 1/2W	6-112004
R77, R78	Resistor, 0.5Ω ±1%, 1W	5-113998
R79	Resistor, 22Ω ±5%, 1/4W	5-115509
R80	Resistor, 1K ±5%, 1/4W	5-118155
R81	Resistor, 10K ±5%, 1/4W	5-118161
R82	Resistor, 5.6K ±5%, 1/4W	5-118257
R83	Resistor, 15K ±5%, 1/4W	5-118162
R84	Resistor, 510K ±5%, 1/4W	6-110844
VR1	Potentiometer, 5K 1/2W	6-111943
VR2	Potentiometer, 5K .2W	5-119773
VR3	Potentiometer, 100K .2W	5-118175
VR6	Potentiometer, 100Ω .2W	5-119770
VR7	Potentiometer, 100K .2W	5-118175
VR8, VR9	Potentiometer, 1K .2W	5-119649
VR10	Potentiometer, 5K .2W	5-119773

VR8, VR9
VR10

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